

**CLAIMS:**

- 1) A battery for a PEA, comprising:
  - a) an anode;
  - 5 b) a cathode;
  - c) an electrolyte separator between said anode and said cathode, said electrolyte separator including polyamide and solvent present in a range from about 10% to about 40% by weight of said electrolyte.
- 10 2) A battery as defined in claim 1, wherein the portable electronic appliance is selected in the group consisting of cell phone, PDA, laptop computer, smart card, camcorder and digital camera.
- 15 3) A battery as defined in claim 2, wherein said electrolyte separator includes solvent in the range from about 15% to about 30% by weight of said electrolyte.
- 20 4) A battery as defined in claim 3, wherein said electrolyte separator includes solvent in the range from about 20% to about 25% by weight of said electrolyte.
- 25 5) A battery as defined in claim 2, wherein said battery has a weight less than 500 grams.
- 6) A battery as defined in claim 5, wherein said battery has a weigh less than 250 grams.
- 30 7) A battery as defined in claim 2, wherein said anode contains material capable of intercalating lithium ions.

- 8) A battery as defined in claim 7, wherein said anode includes a current collector.
- 9) A battery as defined in claim 2, wherein said solvent is  
5 selected from the group consisting of N,N-methylpyrrolidinone (NMP), gamma-butyrolactone, and sulfamides of formula;  $R_1R_2N-SO_2-NR_3R_4$ , in which  $R_1$ ,  $R_2$ ,  $R_3$  and  $R_4$  are alkyls having between 1 and 6 carbon atoms and/or oxyalkyls having between 1 and 6 carbon atoms and  
10 combinations thereof.
- 10) A battery as defined in claim 2, wherein said cathode includes active material.
- 15 11) A battery as defined in claim 10, wherein said active material is selected from the group consisting of  $LiCoO_2$ ;  $LiMnO_2$ ;  $LiNiO_2$ ;  $Li_4Ti_5O_{12}$ ;  $LiV_3O_8$ ;  $V_6O_{13}$ ;  $V_2O_5$ ; and  $LiMn_2O_4$  and combinations thereof.
- 20 12) A battery as defined in claim 10, wherein said cathode includes an electronic conductive filler.
- 13) A battery as defined in claim 12, wherein said cathode includes an ionically conductive electrolyte  
25 polymer binder.
- 14) A battery as defined in claim 2, wherein said electrolyte separator comprises an alkali metal salt.
- 30 15) A battery as defined in claim 14, wherein said alkali metal salt is selected from the group consisting of

$\text{LiPF}_6$ ,  $\text{LiBF}_4$ ,  $\text{LiSO}_3\text{CF}_3$ ,  $\text{LiClO}_4$ ,  $\text{LiSCN}$  and combinations thereof.

16) A method for manufacturing a battery for a PEA,  
5 comprising:

- a) preparing an electrolyte separator including polyamide and solvent present in a range from about 10% to about 40% by weight of said electrolyte;
- b) using said electrolyte separator to assemble a cell  
10 in which said electrolyte separator is located between a cathode and an anode.

17) A method as defined in claim 16, comprising charging said battery.

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